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(54)**CURRENT MIRROR CIRCUIT AND  
CURRENT SENSOR AND SWITCHING  
CIRCUIT AND SWITCHING DEVICE  
EQUIPPED WITH THEM**

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a current sensor with high current detecting precision which can be loaded on a switching device capable of a quick response at the time of the generation of incomplete short-circuit.

SOLUTION: This current sensor is provided with a first semiconductor element Q93 having first and second main electrodes and a control electrode, a second semiconductor element Q94 having a first main electrode and a control electrode connected with the first main electrode and control electrode of the first semiconductor element Q93 and a second main electrode, a comparator CMP401 whose first input terminal is connected with the second main electrode of the first semiconductor element Q93, and whose second input terminal is connected with the second main electrode of the second semiconductor element Q94, and a third semiconductor element Q95 whose first main electrode is connected with the second input

terminal of the comparator CMP401, whose control electrode is connected with the output terminal of the comparator CMP401, and whose second main electrode is connected with a reference resistance Rr2. Then, currents flowing through the first semiconductor element Q93 can be detected by detecting currents flowing through the reference resistance Rr2.

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